On-Net Surveillance Systems,Inc.

NetDVR Rev 4.0

Network Based CCTV Management System

Installation and User Manual

222 Route 59 suite 303 • Suffern, NY 10901 • U.S.A
Phone: (845) 36900 • Fax: (845) 369-8711
www.onssi.com

Installation Guide & Manual

Dear Customer,

With the purchase of On-Net Surveillance Systems Inc (ONSSI) NetDVR you have chosen an extremely powerful and flexible surveillance solution. ONSSI NetDVR will turn your TCP/IP-based video cameras and video servers into a sophisticated digital video surveillance system fully controlled from your PC.

ONSSI NetDVR (version 4.0b) provides you with these main features:

- Record and view cameras with up to 30 frames per second (25 for PAL)
- Control up to 64 cameras per server
- Secure image database with daily archiving and recovery options
- Advanced low disk space database handling
- Scheduled recording on time and/or event
- Flexible screen setup with Recordings Browser and HotSpot in floating windows
- Advanced motion detection with Exclude Filter for image areas of no interest
- Advanced recording rules based on motion and external events
- Increased recording speed on alarm option
- Find specific recordings by date/time or event
- Record sound while listening to previously recorded sound
- Control of PTZ cameras and digital PTZ in iPIX 180 degree images
- Up to 25 PTZ preset positions per camera for fast PTZ or scheduled patrolling
- Advanced input/output control (external events)
- Play back database recordings for up to 9 cameras with audio simultaneously
- Time stamped event documentation on print, as AVI with audio or single JPEGs
- Export extractions of databases for later review by auditors or authorities
- Receive motion alerts via E-mail and SMS
- All system messages on screen, in log-file and optionally via E-mail and SMS
- Remote access to the system through the included Web Server with live images in single- and quad-view, pan/tilt/zoom preset control, database playback and database browsing
- Configurable remote user access rights: Limit access to cameras, database playback/browsing and AVI creation

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Installation Guide

Note that for simplicity TCP/IP based video camera/server equipment will be called "devices" throughout this guide.

Introduction

ONSSI NetDVR consists of five software applications: **Administrator**, **Monitor**, **Browser**, **Web Server** and **Realtimefeed Server**. Each of these applications is described briefly below.

The **Administrator** application: The administrator of the surveillance installation uses this tool when setting up the system for the first time use, when adding new cameras and whenever the system configuration needs to be changed. This tool is also used to configure the screen layout of the **Monitor**, recording conditions, etc.

The **Monitor** application: This application is the core of the surveillance system, as well as the main user interface. The **Monitor** records and displays live images from the connected video cameras. Depending on the user rights, the operator may start and stop cameras and control PTZ cameras.

The **Viewer** application: This application is used to play back recordings (up to 16 cameras simultaneously), create AVI files, export and print images, and to export databases for review on another PC.

The **Web Server** and **Realtimefeed Server** applications: These two applications make up a powerful Web server that will enable users to access the surveillance system from a remote site using a Web Browser. Using a Microsoft™ Internet Explorer Web Browser on a remote computer you can view live images from the cameras, control PTZ cameras, and review recordings. An alarm overview is available to locate the desired event quickly.

Please note

⇒ You cannot run the **Administrator** application and the **Monitor** application simultaneously; you will need to close one before opening the other.

⇒ In order to achieve the best performance and most reliable operation, it is recommended that you do not use the surveillance PC for other purposes.

⇒ The **Monitor** application and cameras must run to record images. The video surveillance is therefore not working if the Monitor application is closed!

Before You Install

Please be aware of the minimum system requirements.

Minimum Hardware Requirements *)		
	Up to 5(images/second total	Up to 40(images/second total
CPU	*Pentium III, 1GHz*	*Pentium4 Xeon, 3.4GHz*
HDD	*E-IDE disk(s)* *Size depends on storage needs*	*Fast SCSI disks* *Size depends on storage needs*
RAM	*256 MByte*	*512 MByte*
Video	*min. 1024 x 768 pixels* *AGP video card*	*min. 1024 x 768 pixels* *AGP 128MB video card*
Network	*Ethernet 100 Mbit*	*Ethernet 100 Mbit*

*) Based on 320x240 JPEG images, medium compression.

Software Requirements	
OS	*Microsoft Windows XP PRO/ 2003* ***Note:*** *It is highly recommended that all available Service Packs are installed for the Operating System being used!*
Protocols, APIs and Software	*- TCP/IP support is required* *- Microsoft Internet Explorer 5.5 or newer is required* *- DirectX 8.1 or higher required for audio recording*
In-compatible Software	*FTP Server: Included in the software (default port 21).* *HTTP Server: Included in the software (default port 80).* *Realtimefeed Server: Included in the software (default port 9513).* *To run other servers on these port numbers it is required to change the port number used by the NetDVR server.*

In order to check if the TCP/IP protocol has been installed, look…

Under Windows XP/2003: *In the Network item of the Windows Control Panel, check in the Local Area Connections (default name) that the TCP/IP protocol is installed and bound to your network adapter.*

Step 1: Obtain Device License Keys

Please refer to the ONSSI NetDVR **Getting Started Guide** for details on how to obtain and import Device License Keys (DLKs).

Device License Keys are not required to run the Demo version.

Step 2: Connect the Devices

Connect all the devices to your LAN/Ethernet as described in the manuals for the camera devices. Consult these manuals for more information.

For devices having an integrated Web interface, you can verify that the device is successfully installed on your network by connecting to it using a standard Web Browser. If you cannot connect using a Web Browser, then you will not be able connect in ONSSI NetDVR either.

Step 3: Install the Software

To make sure you install the most recent version of our software, please check our website **www.onssi.com** for updates. Here you can also download the ONSSI NetDVR **Getting Started Guide** and an updated version of this **User Manual**.

Please refer to the ONSSI NetDVR **Getting Started Guide** for details on how to uninstall any previous version of the software and how to install the most current version of the ONSSI NetDVR.

*The ONSSI NetDVR by default starts up automatically when the PC is started. This functionality can be disabled in the General Setings window in the **Administrator** application.*

If a demo version of NetDVR was already installed it is necessary to remove the image databases. This can be done either by uninstalling the demo version (including the databases) or by clearing each camera database from within the new version of the NetDVR software.
Please refer to the section "Setting Image Quality and Recording Conditions" for more details on this.

Step 4: Configure for First Time Use

Upon successfully installing the ONSSI NetDVR software you will need to add your video camera and video server devices.

The ONSSI NetDVR **Getting Started Manual** can guide you through these initial steps, including a basic configuration of the **Monitor** screen layout and scheduler setup.

For more advanced customization options, please refer to the **Administrator Manual** section in this manual.

Program help

The **Administrator**, **Monitor**, and **Browser** applications has context help for all available functionality.

You obtain help by pressing the question mark icon in the program's active window (or in some windows, the Help button). The cursor will turn into a “What’s this” cursor and you can now click on the item that you need help with. Afterwards, click anywhere with the mouse in order to remove the help pop-up window.

Obtaining Support

If you have questions or problems not answered in this manual, please contact your ONSSI Software dealer or visit the ONSSI Surveillance Support site at www.onssi.com.

We trust you will enjoy using this ONSSI prc luct!

The **Administrator** application is used when setting up the system for first time use, when new cameras are added to the system, and whenever the system configuration needs to be changed. This tool is also used to configure the screen layout of the **Monitor** application, which recording conditions to use, etc. Start the **Administrator** from the Program Menu.

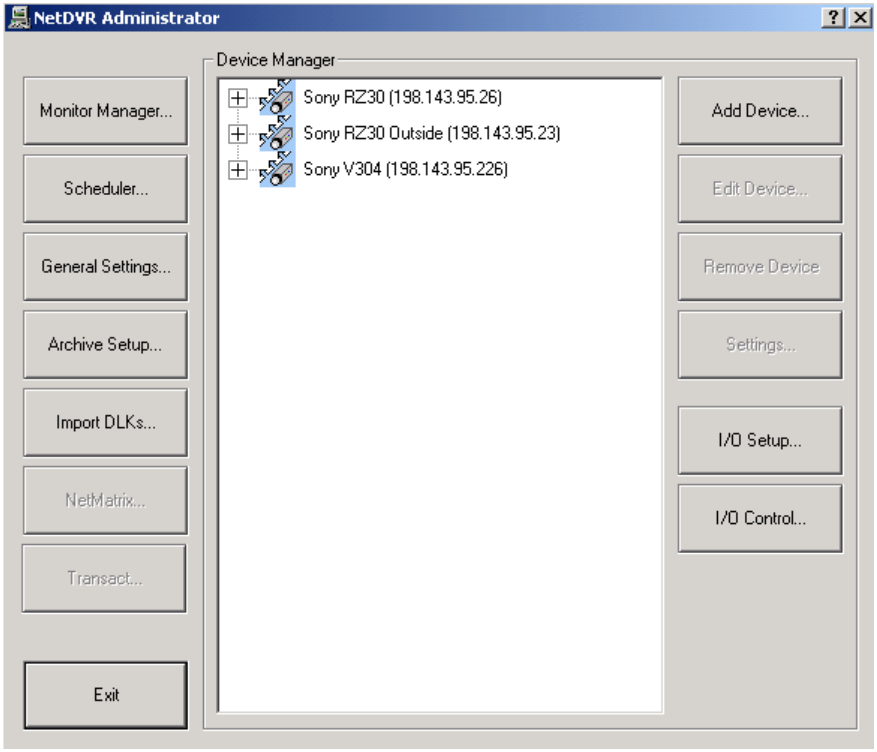


*Figure 1: Main dialog box of the **Administrator** application*

In the main dialog box you have the following buttons:

Add Device...	Add new video camera or video server devices to the system. Please refer to the **Getting Started Guide** and the more detailed "Configuring Video Cameras and Video Server Devices" section in this manual for details.
Edit Device...	Edit/update the configuration of an existing device.
Remove Device	Remove an existing device from the system.
Settings...	Set up image quality and recording conditions, etc. for the camera. See section "Setting Image Quality and Recording Conditions".
I/O Setup...	Define inputs and output that you would like to have available on the system. Inputs can be used to create an alert or start/stop a camera. Outputs can activate the output ports on selected devices and thereby make it possible to turn on e.g. a siren or the light.
I/O Control...	Setup defined inputs to activate selected outputs. More inputs can activate the same output. Both external inputs and timer events can be used to activate an output.
Monitor Manager...	Set up screen layout and screen positions of the cameras, etc. See section "Configuring Monitors and User Interface Layout".
Scheduler...	Control when cameras are online and when alerts are given. See the "Scheduling Camera Activity and Alert Periods" section.
General Settings...	Set up user rights and other system settings. See section "General Settings".
Archive Setup...	Set up of daily image database archiving if required. See section "Daily Database Archiving".
Import DLKs...	Import the DLK file generated by the ONSSI DLK retrieval system. Please refer to the **Getting Started Guide** for details. Importing the DLK file eliminates the need to enter the DLKs manually!
NetMatrix...	Enabled when the ONSSI NetMatrix plug-in is installed only.

Configuring Video Cameras and Video Serve Devices

When you have installed the software you will need to configure it for all your video camera and video server devices. The NetDVR Add Device Wizard will help you with this.

Before you start adding devices it is suggested that the DLKs are imported.
Please follow the steps described in the E-mail received from the NetDVR DLK retrieval system, and in the **Getting Started Guide**, to import the DLKs.

When pressing the *Add Device* button In the **Administrator** the wizard will appear:

First Wizard dialog box:	
The video device has this IP-address on the network:	Enter the IP address of the device on your network (Note: Not needed with a frame grabber card).
Click the 'Port Setup' button if other than HTTP port 80 and FTP port 21 is used	The HTTP and FTP ports used can be changed by clicking the "Port Setup" button. This is used if more devices share the same IP address (e.g. behind a router with NAT functionality). In the vast majority of cases it will not be necessary to change the default ports.

Second Wizard dialog box:	
The password for the video device administrator account is:	Please enter the password for the video device's administrator account (sometimes called 'root' or 'admin').
Autodetect Device	For fast detection you can select the video device type. You can also keep the 'Auto Detect Type' selection and let the system find the device type.

Third Wizard dialog box:	
DLK:	Please enter the Device License Key (DLK) for the MAC address. The DLK will appear automatically if the SLC.dlk file received by E-mail was imported (See the E-mail for details).

Fourth Wizard dialog box:	
Show this name for the video device:	Please enter a name that will help you identify the device later, e.g. "Entrance Door, "Sales office" etc. Note that the system does not allow two devices with the same name.
Press the Camera Setup button to set up camera names and PTZ devices for this device.	Press the Camera Setup button if changes should be made to the default camera name (Camera 1). For multi-channel video servers the camera names are Camera 1, Camera 2, etc. PTZ devices (PTZ cameras or fixed cameras on PTZ foots) should be enabled and the COM port and driver selected. For more detailed information see the sub section “Configuring Video servers" found in the next section ("Changing Device Settings").

After a device has been successfully added a new device icon will appear in the "Device Manager" window. Press the "Add Device..." button again in order to set up remaining devices.

Changing Device Settings

Changes to HTTP/FTP ports, IP addresses and device/camera names can be done by selecting the device in the "Device Manager" window and subsequently pressing the "Edit Device..." button.

In the *Identify Video Device* area the following information is found:

Device Type	The type of device you are using. (The device type can be found automatically if you press the *Detect Device* button and the correct IP-address and Device Password have been specified).
Device Name	The name that helps you identifying the device in the software, e.g. "Entrance Door", "Meeting Room 1" etc. Note that the same name can not be used for more than one device.
Device Serial Number	The serial number (usually the MAC address) of the device, e.g. 00408c291ba2. The serial number is usually found on a label on the device (can also be found automatically with the *Detect Device* button if the correct IP-address and Device Password have been specified).
Device License Key	16 characters license key associated with the device, e.g. c5a8ff0c89679490 (See Step 1 "Obtain Device License Keys").
Enable iPIX	With iPIX 180 degrees image technology it is possible to PTZ in images taken by a fisheye lens camera. The iPIX technology converts the fish-eye lens image to a normal looking image in which you can move around, covering a much larger area than with a normal lens camera.
iPIX License Key	License key for enabling iPIX technology for the specific device. The iPIX License Key is obtained in the same way as DLKs, using the iPIX License Code instead of the Software License Code. If using an iPIX device the license is not needed. It is only needed when using an non-iPIX device while using the iPIX technology.

In the *Network Settings* area the following information is found:

IP-address	The IP address of the device on your network.
Default HTTP port	Select this option if HTTP traffic to the device should go through port 80 at the specified IP-address. Deselect this option if a non-standard HTTP port should be used and specify the port in the field to the left of this checkbox.
Default FTP port	Select this option if FTP traffic to the device should go through port 21 at the specified IP-address. Deselect this option if a non-standard FTP port should be used and specify the port in the field to the left of this checkbox.
Root Password	The password required when logging on to the device using the “root” (sometimes called "Admin") account.

In the *Audio* area the following information is found:

Audio Enabled	Available if audio is supported for the device. Select the option to enable audio through the device. Audio requires DirectX 8.1 or higher, which means that audio is not possible when using NT 4.0.

Configuring Video Servers

For Video Servers you need to specify if the connected cameras are Pan/Tilt/Zoom cameras and you can also give the individual camera a name.
In order to do this, press the *Camera Settings* button and the *Camera Settings for Device* dialog box will appear.

In the *PTZ Camera Selection* area the following information is found:

Some of the connected cameras ...	Select this option if any of the connected cameras are Pan/Tilt/Zoom cameras.
PTZ type controlled through COM1	If you are controlling the PTZ functionality of one or several cameras through the COM1 control port of the device then you must select the correct PTZ camera type in the list box. If you are not controlling any devices through this port, select "None".
PTZ type controlled through COM2	If you are controlling the PTZ functionality of one or several cameras through the COM2 control port of the device then you must select the correct PTZ camera type in the list box. If you are not controlling any devices through this port, select "None".

In the camera list box you will see a line for each camera channel on the Video Server. First line (Camera 1) corresponds to camera channel 1 and so on. In order to specify the settings for e.g. Camera 1 click once the first line, it will then become selected. In the configuration area below you have the following options:

Camera Name	Enter a name of the camera for you to remember it by. E.g. a name related to its location, such as "Main Entrance".
Camera Type	If the camera is a PTZ camera select "Movable", otherwise select "Fixed".
Device Port	Enabled if "Movable" is selected as *Camera Type*: Select, which control port on the Video Server, should be used to control the PTZ functionality of the camera.
Port Address	Enabled if "Movable" is selected as *Camera Type*. Specify the port address of the camera, which would normally be 1 or 0. If using daisy chained PTZ cameras the port address identifies each of them. Please refer to the camera manual for more information.

Pressing the *Apply Changes* button will show the updated information in the camera list box. Press the OK button when you are done.

When you have configured the software for your camera and video server devices then you need to select which screen layout the Monitor application should use, and you must specify where the individual cameras should be displayed on the screen.

In the Administrator press the Monitor Manager button and the Monitor Manager dialog box will be shown.

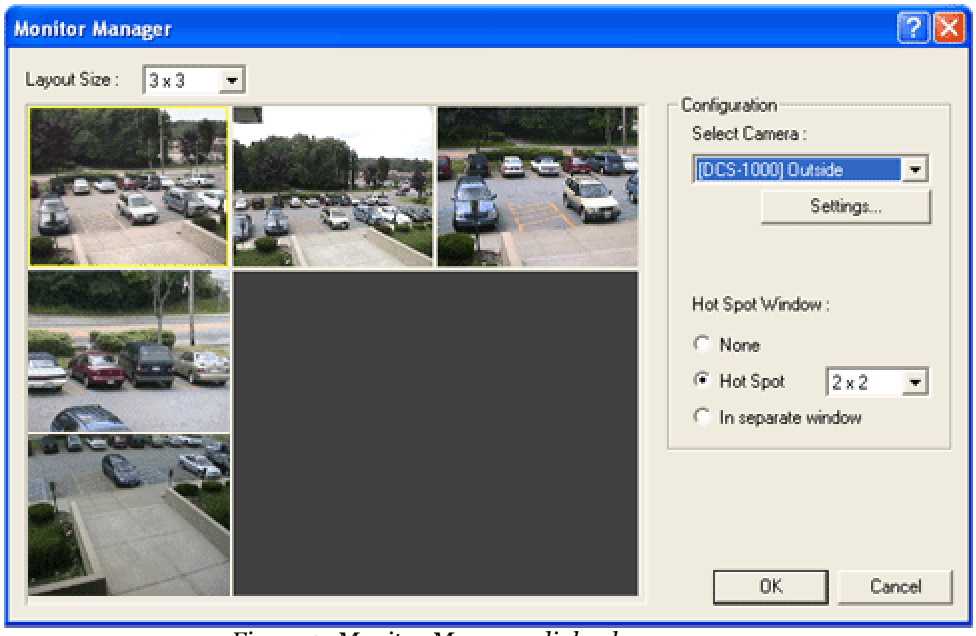


Figure 2: Monitor Manager dialog box

In the Monitor Manager dialog box you have the following options:

Layout Size	Select how many monitors (i.e. camera windows) you wish to appear on your screen. Select between 1x1 to 8x8 monitor views.
HotSpot Window	The Hotspot Window is a secondary camera window that can show an enlarged view of a selected camera. It can also be used for interactive PTZ control and to browse through previously recorded images (Quick Browse). • Select "None" if you don't want the HotSpot window to appear. • Select "HotSpot" and the desired size of the window if you do want the HotSpot window to appear in the Monitor window. • Select “In separate” window if you want the hotspot to appear in a resizable, floating window. The floating Hotspot Window can be switched on and off from within the Monitor application.
Select Camera	Select which camera to show in the selected monitor. You assign the cameras to the monitors by (a) clicking with the mouse on the monitor you want to assign a camera to and (b) selecting the desired camera in the *Select Camera* drop down box.
Settings...	This button will take you directly to the *Camera Settings* dialog box for the currently selected camera. See the "Setting Image Quality and Recording Conditions" section for more information.

Setting Image Quality and Recording Conditions

For each of your cameras you can set the desired image quality, recording speed, and other conditions for the recording of images. When recording sound from a device, the database setup for the sound recording is also managed from here.

In the Administrator main dialog's tree-view, select the camera in question and press the "Settings..." button. The Camera Settings configuration dialog box will be shown.

> *You can also invoke this dialog box by pressing the Settings... button in the Monitor Manager dialog box.*

In the *Framerate Settings* area you specify the recording speed of the camera:

Desired Framerate	Specify the desired recording speed by entering the number of frames you wish to retrieve from the device each second, minute or hour. This will give you a recording range from 24 images per day up to 30 images per second (25 images per second for PAL).
Enable Speedup	Select this option if you want to increase the framerate on motion detection and/or an external event. "On motion": Increase the framerate when motion is detected. The framerate will revert to its original (lower) speed two seconds after the last motion is detected. "On event": increase the framerate when the specified external *Start event* is detected. The framerate will revert to its original speed when the specified external *Stop event* is detected. Please refer to Appendix A: *"Advanced Camera Control with Sensors"* section of this manual for details of how to set up external events.
Desired speedup framerate	When the *Enable Speedup* option is selected, the desired (higher) recording speed is specified here by entering the number of frames you wish to retrieve from the device. This higher recording speed will be used whenever the speedup conditions are met, as specified under *Enable Speedup*. As with the desired framerate setting this will give you a recording range from 24 images per day up to 30 images per second (25 images per second for PAL).

In the *Image Storage* Settings area you specify the conditions for the recording:

When to store images in database	Specify when to store the received images for this camera in the database. "Always": Unconditionally store all received images in the database. "Never": Never store any images in the database. Images are still displayed in the Monitor window but can not be viewed via the web interface. "Conditionally": Store the images to the database when the specified conditions are met only. *On motion*: Store all images with motion (default setting) *On Event*: Store all images (regardless of motion) when the defined Start event occurs until the defined stop event occurs. Both conditions can be used alone or combined. When both options are ticked images are stored in the database if just one of the conditions is met.
Pre/Post buffer	The number of seconds to store before and after the conditions for storage is met.

In the *Database Settings* area you specify how many images you want to store in your image database and the location of the image database files on your disk:

Max. images in database	Select this option to limit the image database for the camera to a maximum size. When the maximum number of images has been recorded, the oldest image in the camera database will be overwritten automatically, each time a new image is received. The maximum size that can be specified is 600.000 images.
Delete images older than	Select this option if you want the recordings in your image database for the camera to be limited by age. If this option is selected the images will automatically be deleted when they are older than the specified number of minutes, hours or days. Please note that you will not be able to store more than 600.000 images regardless what maximum age has been specified.
Database Path	Specify the main directory on your disk to keep the image database. A sub directory for this camera will be created by the system, but the main directory you specify must exist; it will not be created automatically. To achieve the best performance, it is recommended that you specify a location on a local hard disk, not on a network drive.
Browse path (...)	Press this button if you wish to browse for the database path directory.
Clear Database...	Press this button if you wish to delete all images recorded for this camera. *Caution: All your recordings for this camera will be permanently lost (This does not include archived databases).*

Delete Audio older than	Select for how long audio recordings should be kept in number of minutes, hours or days. When older than specified, sound recordings will be deleted unless they have been archived. Audio archiving is done automatically if the image database archiving functionality is activated.
In Case Of Database failure…	In case of a database failure, three image database recovery options are available. "Attempt to repair database": The database repair function will be activated when the Monitor is started. Please note that no images can be recorded while the database repair function is running. For large installations this can take several hours. "Delete the database": The database will be deleted when the Monitor is started. "Archive the database": The database will be archived and a new created for instant start of recording when the Monitor is started. The first time the archived database is opened in the Browser the database repair function will start repair of this specific database. Please note that this option is available only if archiving has been set up for this camera. Please refer to the chapter *Daily Database Archiving* in this manual for details.

In the case recordings get bigger than expected or the available disk space is suddenly reduced in another way, an advanced database re-sizing procedure will automatically take place:

If archived databases are present on the disk containing the current database the oldest archive for all cameras on that disk will be deleted.
If no archives are present the database size of the current databases will be reduced, so that a percentage of the oldest recordings will be deleted and each database size will temporarily be limited to its new size.

You will be informed on the screen, in the log-files and optionally through E-mail (if setup) and SMS (if setup).

When the Monitor application is restarted the old database sizes will be used. It is therefore up to the user to adopt the new sizes or solve the disk size problem in another way.

In the *Camera Monitor Setup* area you specify how your camera is displayed in the Monitor:

Show Motion	Select this option if you want the detected motion to appear highlighted in the image. If selected, the areas of the image with motion will be colored with the selected motion color. Clicking the "Motion Color..." button in the "Motion Detection Settings" area will allow you to change the motion color used.
Show Regions	Select this option if you want the areas in which motion detection has been excluded (disabled) to appear highlighted in the image. If selected, the areas will be colored with the selected region color. Clicking the "Region Color..." button in the "Exclude Regions Settings" area will allow you to change the region color used.
Update on motion only	Select this option if you only want the camera to be updated on your screen when motion has been detected. Enabling this option greatly reduces the workload of the PC. It is therefore recommended that you select this option if the PC runs primarily as a server, serving clients through the built-in Web Interface. Note: It is possible to disable screen updating completely in the General Settings menu.
Enable iPIX	Select this option if iPIX technology should be applied to the camera. When selected, a fish-eye image will look like an image from an ordinary camera lens. Note: Only available if iPIX have been activated for the device.
IPIX Settings	Click this button to configure the iPIX Technology for the camera. IPIX conversion of a fish eye image to a normal image is based on this configuration. The configuration is described in Appendix C.

In the *Motion Detection Settings* area you have access to setting up motion detection for the camera:

Motion Detection...	Press this button in order to calibrate the motion detection. Please refer to the *Calibration of Motion Detection* section for details.
Motion Color...	Press this button to select a new motion color. Please refer to the "Show Motion" option in the *Camera Monitor Setup* section.

In the *Exclude Regions Settings* area you have access to setting up regions for the camera that should be excluded from motion detection:

Exclude Regions...	Press this button in order to specify if certain areas of the images should be excluded from the motion detection. Please refer to the "Defining Motion Detection Exclude Areas" section for details.
Region Color...	Press this button to select a new region color. Please refer to the "Show Regions" option in the *Camera Monitor Setup* section.

In the bottom of the Camera Settings dialog box two (three) buttons are found:

Image Quality...	Activates the "Configure Device" dialog box. Here the camera image quality, including image size and compression, can be set up. A preview image can be shown with the current selected settings.
Outputs...	Click this button to set the output settings for the current camera. In this dialog you can select which defined outputs should be enabled if motion is detected for this camera. You can also specify up to five buttons that will be available in the monitor application when the camera is selected. Each button can control an output to be activated manually. Note: Access to defining outputs is gained by clicking the I/O Setup button in the Administrator main dialog box.
PTZ Preset Positions...	This button is only shown when Pan/Tilt/Zoom is set up for the camera, and the camera supports absolute positioning, or the device driver supports import of relative PTZ positions from the device. Up to 25 preset positions per absolute positioning PTZ camera can be defined in the PTZ Preset Positions dialog box activated by this button. Each preset position can later be instantly accessed in the monitor application. For relative positioning PTZ cameras defined preset positions on the video server (AXIS or Convision) will be listed and used instead. These preset positions must be defined through the web interface of the device before they are available in the NetDVR software. The "PTZ patrolling" and "PTZ goto on event" features are both enabled and set up from this dialog as well.
Event Notification	Move an event from list of “Available Events” to “Active Events” to have orange LED light up in NetDVR Monitor.

For detailed information about PTZ preset positions and their use, please refer to the section "Setting Up and Using PTZ Preset Positions.

Calibration of Motion Detection

The motion detection system may control (a) when images are saved to disk and (b) when alarms are generated, and it is therefore a vital element of the system.

Motion detection needs to be calibrated carefully otherwise it will not function properly. Do this as described below.

> *It is recommended that you set up the image quality to be used, and that any regions excluded from motion detection (if any) are defined before you calibrate the motion detection.*

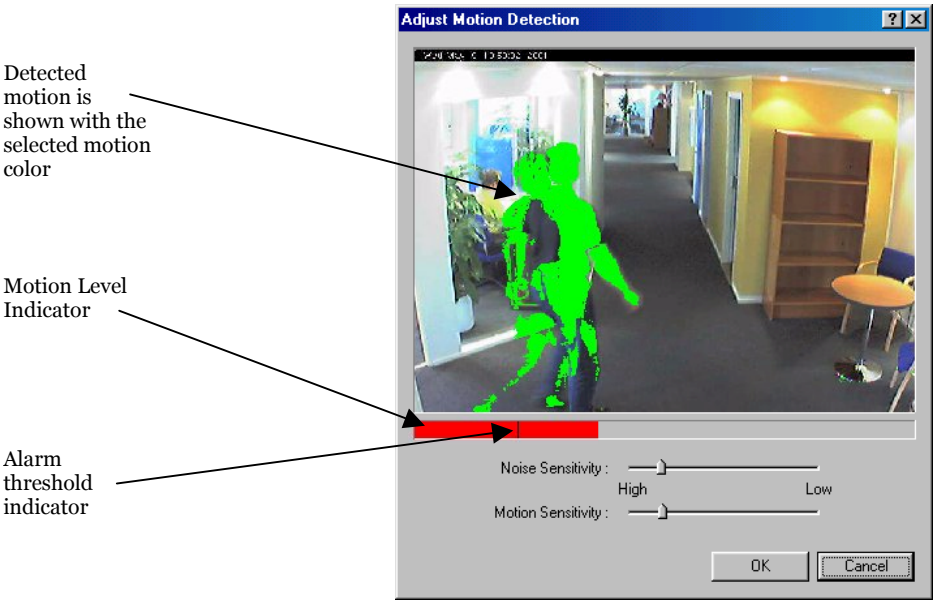


Figure 3: Motion Detection Calibration dialog box.

Motion Level Indicator	Indicates the current level of detected motion in the image. The indicator is green when the level is below the threshold and will turn red when the threshold is exceeded.
Alarm Threshold Indicator	Indicates the selected motion alarm threshold. A motion alarm will be generated when the motion level goes beyond the threshold.

Noise Sensitivity	Slider to adjust the noise sensitivity level of individual picture elements (pixels). The noise sensitivity level controls when the change in light intensity and color (*light change*) of individual pixel should be considered noise (i.e. an insignificant change) and when it should be considered motion (i.e. a significant change). In the live updating camera image you will see the pixels in which motion has been detected marked with the selected motion color (which is green by default). In order to understand how it works, try to drag the slider to position "high" and watch how the whole camera image will turn green. Drag the slide bar back to the optimal position, where only the pixels affected by significant light changes are marked with the motion color.
Motion Sensitivity	Slider to adjust the motion sensitivity. The motion sensitivity controls the alarm threshold and thereby determines the minimum size of an object that will generate an alarm. Drag the slider until the alarm threshold indicator is at the optimal position.

Trees and bushes outdoors and plants indoors may generate undesired noise, you may find that you can define motion detection exclude areas to eliminate this noise.

Some video cameras generate undesired noise at poor light conditions. In order not to generate undesired alarms, you may find that you need to reduce the noise sensitivity or to improve the light condition.

Defining Motion Detection Exclude Ar as

You can define motion detection exclude areas if you wish to exclude (i.e. mask out) certain areas of the image from the motion detection.

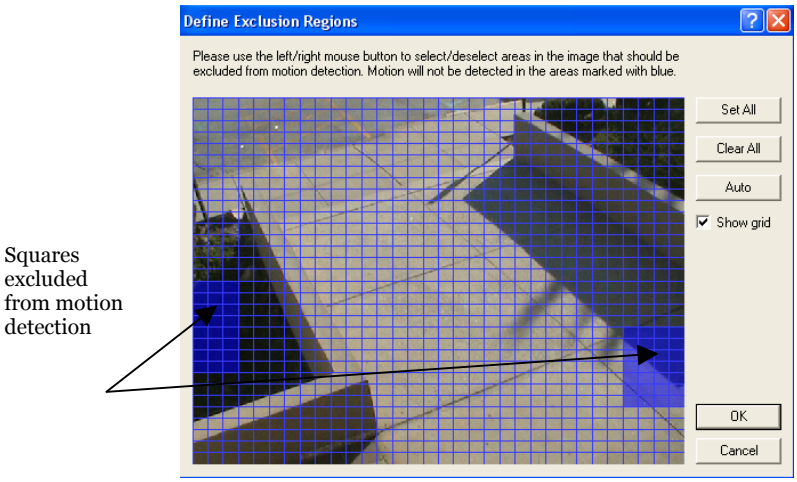

Define Exclusion Regions
Please use the left/right mouse button to select/deselect areas in the image that should be excluded from motion detection. Motion will not be detected in the areas marked with blue.
Set All
Clear All
Auto
Show grid
OK
Cancel
Squares excluded from motion detection

Figure 4: Define Exclude Regions dialog box.

Left mouse button	Exclude square from motion detection.
Right mouse button	Include square in motion detection.
Set All	Press this button to exclude all squares (whole image) from motion detection.
Clear All	Press this button to include all squares (whole image) in motion detection.
Auto	Press this button to make the software detect noisy areas automatically and exclude them from motion detection. Note that the motion detection must be reasonably well calibrated before this auto detection feature will work.
Show grid	Select this option if you wish the grid lines to appear in the image.

Up to 25 PTZ preset positions per absolute positioning PTZ camera can be made accessible in the control panel of the NetDVR **Monitor** application.

For relative PTZ cameras the number of positions will depend on the video server (AXIS or Convision) and the PTZ driver used. Only the preset positions defined on the video server will be listed, and only these position can be used.
The PTZ preset positions dialog box is activated from the camera settings dialog box by pressing the PTZ Preset Positions button.

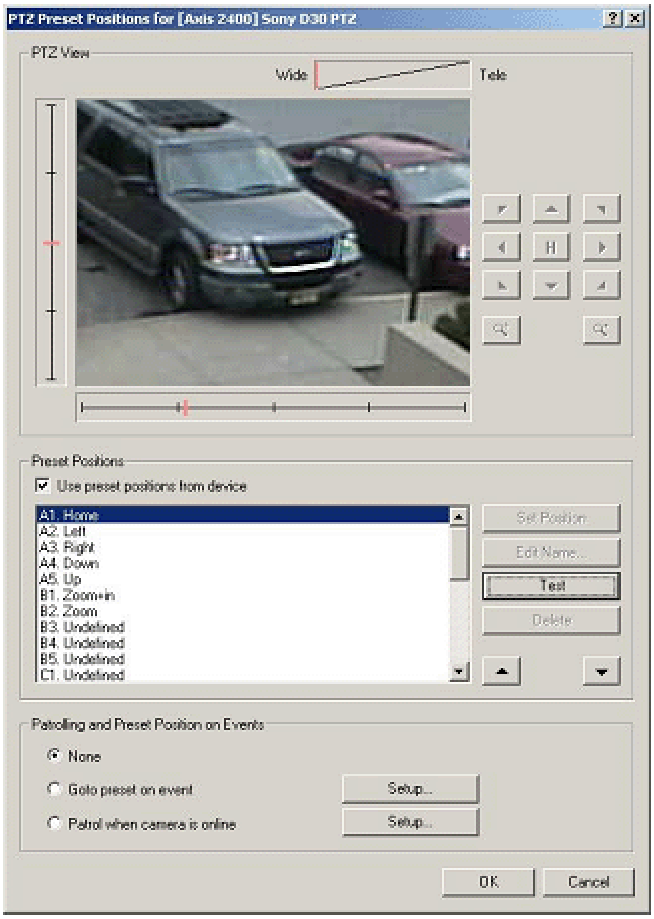


Figure 5: PTZ Preset Positions dialog box

The following functionality is available in the *PTZ View* area of the dialog (only available for absolute positioning PTZ cameras):

Wide/Tele	Click on the bar to set the zoom level for the camera.

	When clicking, the zoom level will be set to the level indicated by the cursor position on the bar.
Tilt (Vertical bar)	Click on the bar to set the tilt position for the camera. When clicking, the tilt level will be set to the level indicated by the cursor position on the bar.
Pan (Horizontal bar)	Click on the bar to set the pan position for the camera. When clicking, the pan level will be set to the level indicated by the cursor position on the bar.
Pan/Tilt buttons	Press the buttons in order to move the camera in the direction indicated by the button.
Zoom buttons	Press the buttons in order to zoom in or out.

In the *Preset Position* area you find the following functionality:

Use Preset Positions from Device *)	For absolute PTZ cameras it can be chosen whether the preset positions on the video server should be used or if preset positions defined in the NetDVR should be used. For relative PTZ cameras, defined positions on the device will automatically be used, i.e. the option cannot be unchecked.
Set Position (Absolute)	Press the Set Position button when the PTZ camera has been moved to the desired position. This will save the position as the (new) preset position for this entry. Note that names will be truncated if they are too long for the preset position buttons in the **Monitor** application.
Edit Name... (Absolute)	Select a preset position in the list and press this button to change the name of the preset position if required.
Test	Move the camera to the selected preset position.
Delete (Abs.)	Remove the selected preset position from the list.
Preset position list	List of all defined preset positions. The list is divided into five groups, A, B, C, D and E, each with 5 preset positions. In the **Monitor** application the preset positions will be shown in these groups of five. Each group has its own button for fast access in the **Monitor**.
List control buttons	Use the arrow up and down buttons in the preset positions area to change the order of the listed preset positions. Selected a preset position and move it up or down the list by using the arrows.

*) Selected devices only, please see the release note for details.

In the *Patrolling and Preset Position on Event* area the following options exist:

None	If preset positions should only be used manually, select this option.
Goto preset on event	Select this option if the PTZ camera should automatically go to a preset position when an event occurs. More events can be connected to the same preset position. The goto preset on event feature will be active when scheduled mode is activated and PTZ mode is not selected for the camera.
Patrol when camera is online	Select this option if the PTZ camera should patrol among selected preset positions when online. The patrol feature will be active when scheduled mode is activated and PTZ mode is not selected for the camera.

Goto Preset Position on Event feature Setup

When clicking the setup button associated with the Goto preset on event selection, the following dialog will show:

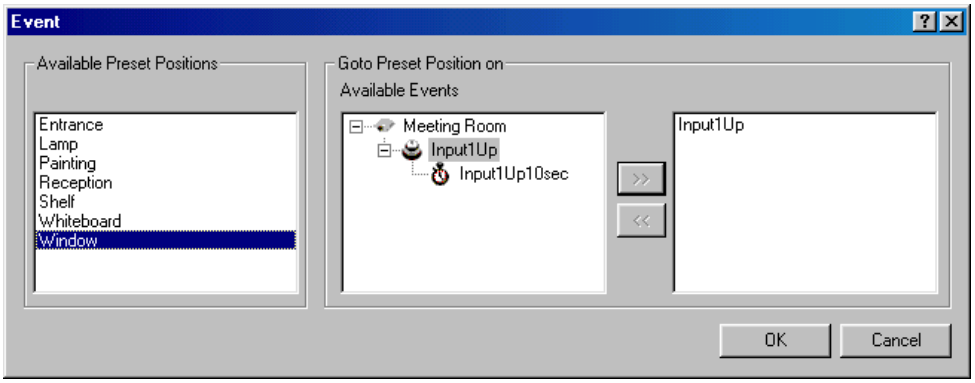


Figure 6: Goto Preset Position on Event dialog box

Available Preset Positions	*Select the preset position that the camera should move to when the events selected in the "Available Events" list occur.*
Available Events	Select the event that should move the camera to the preset position selected. You can select between both external events and timer events in the "Available Events" list.
>> (Add button)	Click the add button ">>" and the selected event will appear in the rightmost list, containing all events that have been connected to the currently selected preset position.
<< (Remove button)	To remove an event from the list, select the event in the rightmost list and click the remove button "<<".

Patrol When Camera is Online Setup

When clicking the setup button associated with the Patrol when camera is online selection, the following dialog will show:

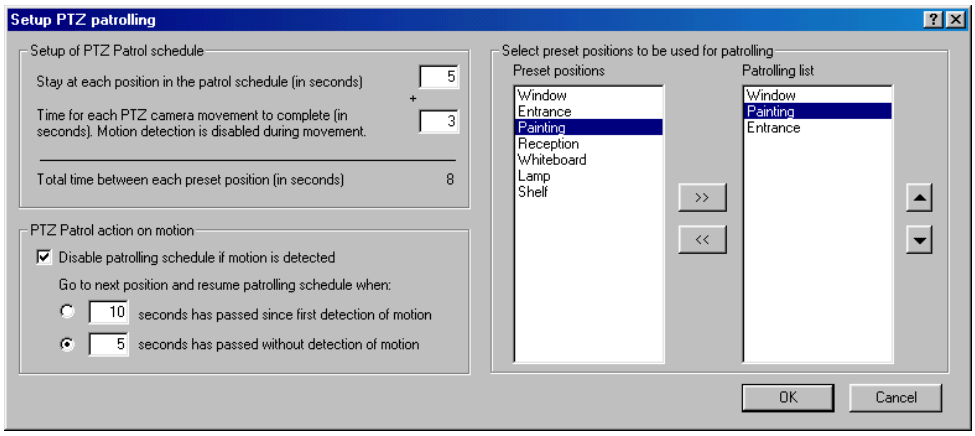


Figure 7: Setup PTZ patrolling dialog box.

In the Setup *PTZ Patrolling* dialog the following options can be set:

Stay at each position...	Indicate for how many seconds the PTZ camera should stay at each preset position included in the patrol schedule.
Time for each PTZ camera...	Indicate the number of seconds for the PTZ camera to complete a PTZ command in worst case. In order not to produce a false motion alert, motion detection is disabled from the time the camera is send to the next preset position in the patrol and until the indicated time has expired. It is therefore important that the PTZ camera is in place at the next position before the time expires.

In the *PTZ Patrol action on motion* area the following functionality is set:

Disable patrolling schedule...	Select this option if motion detected during a patrol schedule should temporarily disable the schedule and await one of the two options available (see below)
Seconds has passed since...	Select the first option if the PTZ camera should stay for the indicated number of seconds after motion was detected for the first time.
Seconds has passed without...	Select the second option if the PTZ camera should keep the position until motion has not been detected for the indicated number of seconds.

In the *Select preset positions to be used for patrolling* area the following functionality is found:

Preset positions	Shows the list of all defined preset positions for the camera. Positions that should be added to the schedule are selected in this list.
>> (Add button)	Click this button to include the selected preset positions from the "Preset position" list in the "Patrolling list". A preset position can be added more than once, so that an important preset position can be visit more than once during the schedule. Note that multiple selections are possible. Hold down “Ctrl” on the keyboard to select additional positions with the mouse or hold down “Shift” to select a range of positions by clicking the first/last position with the mouse.
<< (Remove button)	Click this button in order to remove the selected preset positions from the "Patrolling List". Note that if a preset position is included more than once in the "Patrolling list", only those instances selected will be removed. Note that multiple selections are possible. Hold down “Ctrl” on the keyboard to select additional positions with the mouse or hold down “Shift” to select a range of positions by clicking the first/last position with the mouse.
Patrolling list	Shows the list of all included preset positions in the patrol schedule. A preset position can be included more than once in the list, so that an important preset position can be visit more than once during the schedule.
Move up button	Move the selected preset position up in the "Patrolling list". The preset position visits will be executed in the order they are listed, with the upper preset position as the first.
Move down button	Move the selected preset position down in the "Patrolling list". The preset position visits will be executed in the order they are listed, with the upper preset position as the first.

General Settings

The General Settings dialog box allows you to define which rights the user/operator has when using the **Monitor** application and to set other administrative settings.

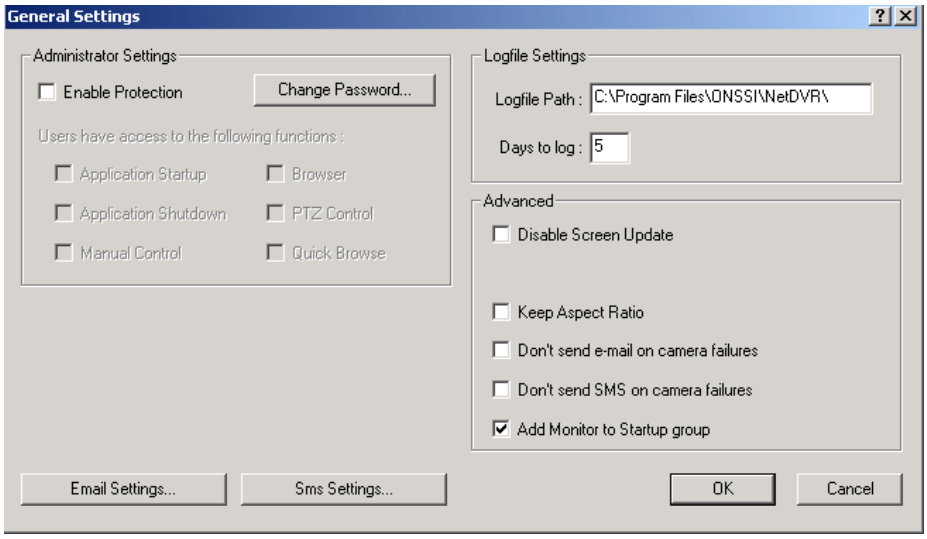


Figure 8: General Settings dialog box

Define user rights in the *Administrator Settings* area:

Enable Protection	Select this option if you want to restrict the user's rights and enable password protection.
Change Password...	Press this button to change the administrator password.
Application Startup	Select this option if the user should be allowed to start the **Monitor** application without having to specify the administrator password.
Application Shutdown	Select this option if the user should be allowed to close the **Monitor** application.
Manual Control	Select this option if the user should be allowed to start and stop the cameras manually in the **Monitor** application.
Browser	Select this option if the user should be allowed to start the browser in the **Monitor** application.
PTZ Control	Select this option if the user should be allowed to enable PTZ mode in the **Monitor** application.
Quick Browse	Select this option if the user should be allowed to invoke the Quick browse feature in the **Monitor** application (requires HotSpot window).

Logfile Settings:

Logfile Path	Specify in which directory on your disk to keep system log files. The directory you specify must exist; it is not created automatically.
Number of days to log	Specify how many days you want to store the log files. A new log file will be created each day. Log files older than the specified number of days will be deleted automatically.

Advanced settings:

Disable Screen Update	Select this option if the Monitor screen is not used on a daily basis by an operator but only used when setting up the software. All Monitor screen updating will be disabled. This can free up resources that may result in better system performance.
Don't send E-mail on camera failure	Select this option to disable sending of an E-mail whenever a camera failure occurs (This will only happen if E-mail is enabled). When not selected, camera failure E-mails will be sent if E-mail has been enabled. Note that this will be carried out at any time regardless of scheduled E-mail alert periods set in the Scheduler.
Don't send SMS on camera failure	Select this option to disable sending of an SMS whenever a camera failure occurs (This will only happen if SMS is enabled). When not selected, camera failure SMS' will be sent if SMS has been enabled. Note that this will be carried out at any time regardless of scheduled SMS alert periods set in the Scheduler.
Add Monitor to Startup group	Makes sure the Monitor is always started up when the PC is booted. Uncheck this box if you do not want the Monitor to start automatically (it is not sufficient to simply remove the Monitor icon from the Windows Startup folder).

Other administrative settings:

E-mail Settings...	Press this button to change the settings for E-mail alerting. See Configuring E-mail Alerting below.
SMS Settings...	Press this button to change the settings for SMS alerting. See Configuring SMS Alerting below.

Configuring E-mail Alerting

The E-mail alerting system needs to be configured before it can be used; you do this in the E-mail Setup dialog box in the following way:

Enable E-mail	Select this option in order to enable E-mail alerting. Note: Camera failures and system failures will automatically be sent through E-mail if this has not been disabled under "Advanced" in the "General settings" dialog box
Advanced...	If Simple MAPI mail client is not available, it is possible to configure SMTP E-mailing instead. SMTP can also be used if the mail client requires confirmation before sending E-mails.
Recipient(s)	Specify the E-mail address of one or more recipients. Use a semicolon (;) to separate the addresses if more than one recipient is specified. E.g.: myself@mycompany.com; myself@home.com
Subject Text	Specify the text string to be used as the subject for the E-mails sent.
Message Text	Specify the text string to be used as the message (body) for the E-mails sent. The name of the device and camera that generated the alarm will automatically be appended to the text.
Include Image	Select this option if you want the image that generated the alert to be attached to the mail.
Time btw. Mails...	Specify the minimum number of minutes between the alert E-mails for the individual camera or 0 (zero) if each motion detection should result in an alert E-mail. A motion alert from a camera will not generate an alert E-mail if the minimum number of minutes specified has not elapsed since the last alert E-mail for the camera was sent. Background information: During a longer period of constant motion a high number of alarms will be generated; it may not be desirable that an alert E-mail is sent for every alarm.
Test button	Press this button to send a test mail to the specified recipient(s).

The Scheduler controls during which hours of the day the motion alert E-mails are sent and which cameras should be generating the E-mails. See the section "Scheduling Camera Activity and Alert Periods" for more information.

Configuring SMS Alerting

The SMS alerting system needs to be configured before it can be used; you do this in the SMS Settings dialog box in the following way:

Enable SMS	Select this option in order to enable SMS alerting. Note: Camera failures and system failures will automatically be sent through SMS if this has not been disabled under Advanced in the General settings dialog box.
GSM terminal connected to	Specify which serial port on the PC you have connected the GSM terminal to.
SIM card PIN code	Specify the PIN code of the SIM card inserted in the GSM terminal.
SIM card PUK code	Specify the PUK code of the SIM card inserted in the GSM terminal.
SMS central phone no.	Specify the phone number of the SMS central to receive your calls.
Recipient phone no.	Specify the phone number of the GSM phone to receive the SMS alert messages.
Message	Specify the text of the message to be sent. Note that: • a maximum of 100 characters is allowed, • only characters in the ranges a-z, A-Z, 0-9, comma and punctuation mark are allowed.
Time btw. Transmissions...	Specify the minimum number of minutes between the SMS alerts for the individual camera or 0 (zero) if each motion detection should result in an SMS alert. A motion alert from a camera will not generate an SMS alert if the minimum number of minutes specified has not elapsed since the last SMS alert for the camera was sent.
Test button	Press this button to send a test SMS message to the specified recipient.

The SMS Alerting System requires that a GSM terminal has been connected to one of the serial ports of the PC.

The software has been designed specifically for the Siemens M20 GSM terminal, but will also work with other GSM terminals compatible with the M20 terminal.

Using the same GSM provider for the GSM terminal and the receiving GSM phone will most likely give you the fastest and most reliable service.

Daily Database Archiving

The software supports daily archiving of the image databases. The main benefit of using daily archiving is that it will allow you to make a backup of the archived image databases on backup media using your normal backup software.

Another important benefit of using daily archiving is that it will increase the maximum image database storage capacity to 600.000 images per camera per day. The number of archived days on disk is only limited on the disk(s) capacity.

Note that a storage capacity of 600.000 images per day corresponds to storing approximately seven images per second 24 hours a day.

You configure the daily image database archiving using the Database Archiving setup dialog box. The dialog box is invoked by pressing the Archive Setup button in the **Administrator** application.

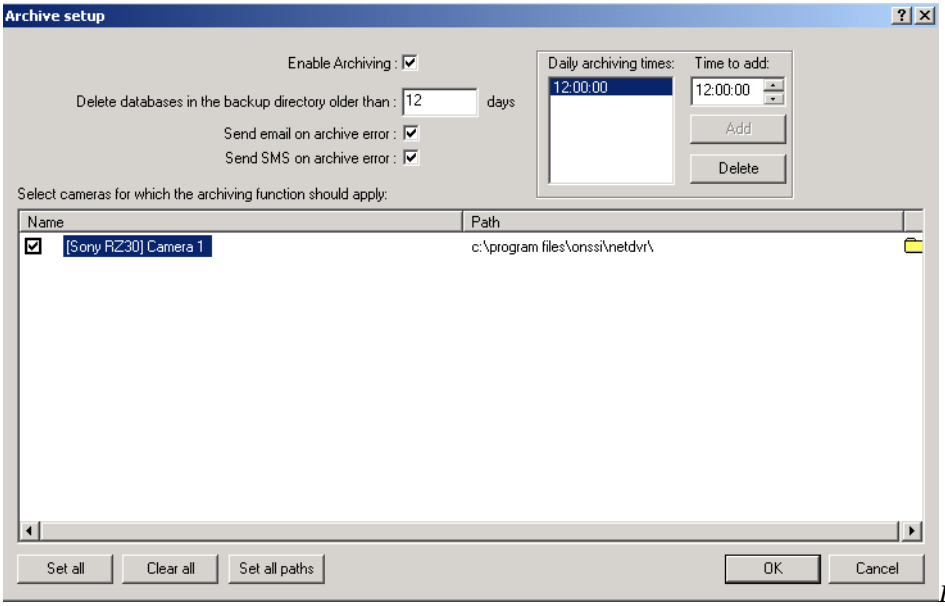


Figure 9: Database Archiving setup dialog box

Enable Archiving	Select this option if you want to use the daily image database archiving feature for one or more of your cameras.
Perform archiving every day at	Specify at which time of the day you want the daily archiving to occur. Note that the cameras will be stopped (i.e. not recording) one by one while the archiving takes place. You should therefore aim at choosing a time of the day where nothing of importance should be recorded. If you are also backing up your image database to a backup media, then you should also choose a time of the day that will not conflict with the scheduled backup job.
Delete databases in the backup directory older than... days	Specify how many days you want to store the archived image databases. Each day at the selected time the image databases will be moved to new sub-directories in the backup directory. Sub-directories containing archived image databases older than the specified number of days will be deleted automatically.
Send email on archive error	When selected, an E-mail will be sent if the system fails to archive a database. This may be caused by a disk running full, as a result of networking problem, or other causes. Emails will only be sent if the email settings has been configured in the *General Setting* email dialog.
Send SMS on archive error	When selected, an SMS will be sent if the system fails to archive a database. This may be caused by a disk running full, as a result of networking problem, or other causes. An SMS will only be sent if the SMS option has been configured in the *General Setting* SMS dialog.
Camera archive selection list	Indicate for which cameras the daily image database archiving should take place.
Camera archive path	It is possible to archive the databases on a different position than the current database is located, including on a network drive. Specify the archiving path for each camera by typing in the path, or use the *Browse* icon button to browse for a directory. Please be aware that the specified path must exist; it will not be created automatically.
Set all	Press this button to activate daily image database archiving for all cameras.
Clear all	Press this button to deactivate daily image database archiving for all cameras.
Set all	Press this button to set the archive database path for all cameras to the

paths	same value as the currently selected path.

How does it work?

*The archived databases for a camera will be stored in a so-called **backup directory**. The backup directory will be created as a sub-directory called "Archives" of the selected image database directory.*

In the backup directory a sub-directory for each camera in this database path will exist. Then name of the sub-directories corresponds to the MAC address of the camera. Daily archived databases will be placed in sub-directories in the MAC address sub-directory and named after the time and date the archiving took place, i.e.:

"Database path"\Archives\"MAC address"\"Date-Time"\"Database files"

Note: Also audio databases are archived when archiving is selected for a camera. For a video server with more camera channels the audio is archived with camera 1.

How do I configure my backup program?

If you want an external backup program to make a tape backup of the daily archived image database for a camera then you should configure it to make a backup of the backup directory.

It is recommended that you do not schedule it to make a backup of the image database directory itself, since this may cause sharing violations and other malfunctions. Note also that you should not schedule the backup job to overlap the time of the daily archiving.

How does Archiving to a Network Drive work ?

When archiving to a network drive (any path not default), the Monitor application first archives the database to the local (default) drive, then moves the archive to the specified archive path.

This is done in order to speed up the archiving operation. Archiving directly to the network drive would mean that the archiving time would vary according to the available bandwidth on the network. Archiving the database locally, then moving ensures that the archiving is performed as fast as possible.

Please be aware that there must be enough space on the local drive to keep the local archive until it is moved to the network drive. As a rule of thumb the available space should be the size of the daily database +50%.
Assuming recordings are spread evenly over time in the database, having a 50% overhead will allow a full 12 hours to move the archives to the network drive, ensuring that the System Administrator will have sufficient time to correct any network errors that might occurs.

Note: To view an archived database located in a non-default path in the Browser, it must be localized using the Browse (...) button in the setup menu.
If several cameras should be viewed at the same time each database must be browsed for individually.

In this section you can read about how to control important functions of the system automatically through the built-in Scheduler. The Scheduler uses a one-week-calendar and allows you to control:

- Starting and stopping cameras on time
- Starting and stopping cameras on events (external sensors)
- Alerting through E-mail, SMS and/or sound on motion detection.
- Motion alerts to certain periods of the day/week.

The Scheduler is activated in the **Administrator** application by pressing the Scheduler button. The following dialog box will appear:

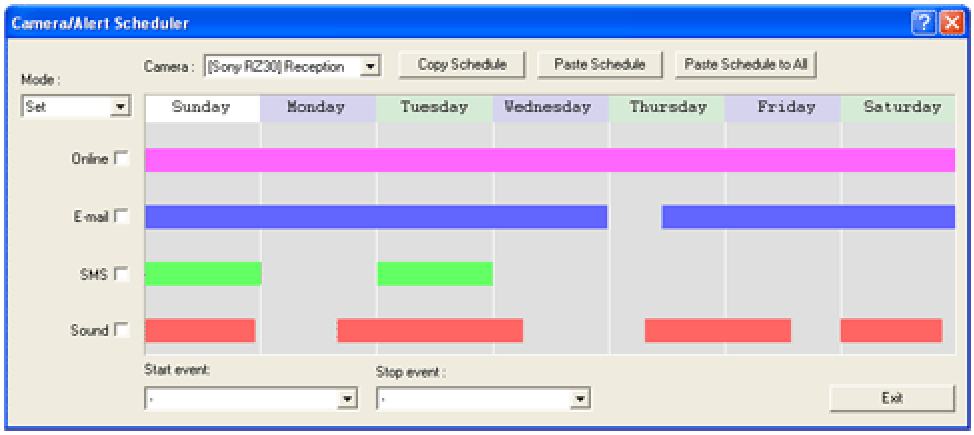


Figure 10: Scheduler dialog box

The following options and buttons are available:

Mode	The mode selection controls if time periods are added or removed when clicking and dragging the mouse in the graphical window. **Set:** Add/replace period for functionality (Online, E-mail, SMS and Sound) currently selected. **Clear:** Remove period for functionality (Online, E-mail, SMS and Sound) currently selected.
Online	This option should be checked if clicking and dragging in the graphical window should affect (Mode: Add/Clear) the Online periods for the selected camera.
E-mail	This option should be checked if clicking and dragging in the graphical window should affect (Mode: Add/Clear) the E-mail alert periods for the selected camera.
SMS	This option should be checked if clicking and dragging in the graphical window should affect (Mode: Add/Clear) the SMS alert periods for the selected camera.
Sound	This option should be checked if clicking and dragging in the graphical window should affect (Mode: Add/Clear) the Sound alert periods for the selected camera. Note: Used for audible alarm via PC soundcard, NOT for scheduling audio recording!
Camera	Select in the list among the installed cameras. The Scheduler only operates on the currently selected camera.
Copy Schedule	Make a copy of the current schedule in order to transfer the same schedule to another camera.
Paste Schedule	Paste the copied (Copy Schedule) schedule setup to the currently selected camera. The same schedule can be pasted to more cameras by selecting each camera from the Camera listbox. **Important:** Be careful when pasting because schedules are overwritten without any warning.
Paste Schedule to all	Paste the copied (Copy Schedule) schedule setup to all cameras. **Important:** Be careful when pasting because schedules are overwritten without any warning.

The graphical window contains a lot of information and functionality:

Online Bar	Shows in which periods during the week the camera is active (i.e. transferring images to the NetDVR software for processing). Camera activity can be controlled through time and/or events. Please refer to Appendix A "*Advanced Camera Control with Sensors*" for more information on working with sensors and events. The Yellow bar indicates that the camera is active (transmitting images) when an event occurs only (On Event). A Purple bar indicates that the camera is active (transmitting images) continuously (Always).
E-mail Bar	Shows in which periods during the week E-mails should be sent when motion is detected.
SMS Bar	Shows in which periods during the week GSM-SMS messages should be sent when motion is detected.
Sound Bar	Shows in which periods during the week sound alerts should be given when motion is detected. The sound file used must be placed in the NetDVR Surveillance directory and must be named alarm.wav. If you prefer a different sound than the default, simply replace the file.

Before using the E-mail Alerting System and the SMS Alerting System you need to configure them by pressing the associated button in the General Settings dialog box and filling out the required information. The General Settings dialog box is activated in the Administrator application by pressing the General Settings button.

See the earlier sub-sections "Configuring E-mail Alerting" and "Configuring SMS Alerting" for information on this.

Click & drag the mouse	When you have selected the Mode (Set/Clear) and selected which functions (Online, E-mail, SMS, Sound) you wish to operate (by checking their check boxes), you do the following: (a) Move the mouse cursor to the desired start time in the scheduler window (pencil cursor indicates Set, eraser cursor indicates Clear), (b) click the left mouse button and keep the button pressed, (c) drag the cursor to the desired end time and (d) release the mouse button. **Note:** When including the "Online" function and the Mode = "Set" a small dialog box will appear: Select "On Event" if the camera should only start transmitting images when the event occurs during the specified time period, or Select "Always" if the camera should transmit images during the time

	period specified. In both cases, the software will store the images in the database only if the conditions set up in the *Camera Settings* are met.
Weekdays	Click on the name of a weekday (in the week overview) to zoom into that day. Click on the name of the day (in the day overview) to zoom out to the week.
Start Event	Select the event that should start the camera in time periods with the "On Event" selection (yellow bars). Events are defined in the "I/O Setup" found in the main dialog of the administrator application. Please also refer to Appendix A "Advanced Camera Control with Sensors" for more information on working with sensors and events.
Stop Event	Select the event that should stop the camera in time periods with the "On Event" selection (yellow bars). Events are defined in the "I/O Setup" found in the main dialog of the administrator application. Please also refer to Appendix A "Advanced Camera Control with Sensors" for more information on working with sensors and events.

Monitor Manual

The **Monitor** application forms the core of the surveillance system; it is responsible for all the practical work during the normal operation of the system. Besides forming the main user interface, the **Monitor** application starts and stops the cameras, acquires the images, displays the images on screen, detects if motion has occurred, saves the images in the image databases, sends alarms, etc.

> *The surveillance system is only active when the **Monitor** application is running. If you close the application you will not be recording images and alert-messages will not be sent.*

Start the **Monitor** from the Program Menu or from the shortcut on the desktop if you chose to make a link during the installation.

*Figure 11: Main window of the NetDVR **Monitor** application.*
Here shown with four monitor windows, each showing the image stream of the associated camera) and the separate HotSpot feature enabled.

In the main window you have the following buttons (from the top):

Minimize	Press the leftmost button of the three small buttons in order to minimize the Monitor window.
Help	Press the middle button of the three small buttons to get on-line help for the next item you click on.
Exit	Pressing the rightmost button of the three small buttons will close the **Monitor** application. You will be asked to confirm this. Note that this will stop all recordings.
Recordings	Press this button to start the Browser and review your recordings. Please see section "Using the Recordings Browser" for details.
HotSpot	Press this button to switch the floating HotSpot on and off (shown only if the floating HotSpot feature is enabled).
PTZ Mode	Press this button to enable/disable the Pan/Tilt/Zoom panel. Please refer to the *Pan/Tilt/Zoom Panel* section for details.
Start / Stop	Press this button to start or stop the camera in the selected monitor. The button is only enabled when manual mode is activated.
Start All	Press this button to start all cameras. The button is only enabled when manual mode is activated.
Stop All	Press this button to stop all cameras. The button is only enabled when manual mode is activated.
Manual (Schedule Override)	Switch between *scheduler controlled mode* and *manual mode*. In scheduler controlled mode the scheduler is responsible for starting and stopping the cameras. In manual mode the cameras can be started and stopped manually using the start and stop buttons. The system is in manual mode when the button is pushed in. **Note that when in manual mode all scheduled camera start/stop, PTZ patrolling and automatic camera reconnection is disabled!**
Admin Login	Press this button to gain administrator rights, and thereby removing the restricted rights a normal user may have. Applicable only if the standard user's rights have been configured to be restricted.
Quick Browse (QB)	Switch between *on-line mode* and *quick browsing mode* in the HotSpot window. The HotSpot window is in quick browsing mode when the button is pushed in.
QB Arrows	Use these two buttons to Quick Browse backward or forward in recordings for the camera shown in the HotSpot window.
Mute	Select this option to mute audio in the monitor application.
Exit	Press this button to stop the Monitor application and thereby stop all camera recording. You will be asked to confirm this.

*When you start the **Monitor** application it will start the cameras automatically if you have specified them as "Online" in the Scheduler. You can disable and overrule the Scheduler by pressing the "Manual" button.*

When in “Manual” mode the cameras can be started manually one by one by pressing the "Start" button or all cameras can be started simultaneously by pressing the "Start All" button.

Note: For normal operation cameras should be scheduled and not left in manual mode!

*The **HotSpot** window shows an enlarged view of the selected monitor window. In order to show another monitor window in the HotSpot window, you must select the new monitor window by clicking on it with the mouse.*

The Pan/Tilt/Zoom Panel

When the PTZ mode button is pushed in the PTZ panel will appear instead of the Start/Stop, Start All, Stop All and Manual buttons. The panel buttons will only be enabled if the selected camera has been set up as a PTZ camera.

Pan/Tilt Arrows	Use these arrow buttons to move the camera in the direction indicated by the arrow. Not all PTZ cameras can be controlled with all eight arrow buttons. Those that can not be used will be disabled.
Home (H)	Press this button to move the camera to its home position. Not all cameras support this function.
Zoom Out (Camera zoom)	Press the button with the magnifying glass and minus to zoom out of the image (Wide). You can also zoom out by moving the slider below this button to the left-hand side.
Zoom In (Camera zoom)	Press the button with the magnifying glass and plus to zoom into the image (Tele). You can also zoom in by moving the slider below this button to the right-hand side.
Preset Position Buttons	If Preset Positions have been defined for the PTZ camera they will appear in the PTZ panel when the camera is selected. The up to 25 available preset positions is divided into 5 groups (A, B, C, D and E).

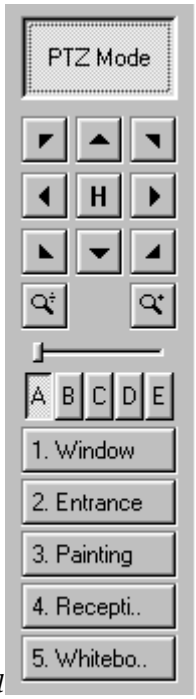


Figure 12: PTZ Panel

The HotSpot *window supports interactive Pan/Tilt/Zoom. With PTZ Mode enabled you can click in the HotSpot window and hold down the mouse button while dragging.*

A slider (0-100%) indicating the zoom factor will appear. Move the slider to the desired zoom factor and release the mouse button. The camera will now center on the spot you pointed out and zoom with the factor you selected.

In the Browser you can review and playback your recordings of images and sound, printout or export the individual images, create AVI video files, export sound as wave files, etc.

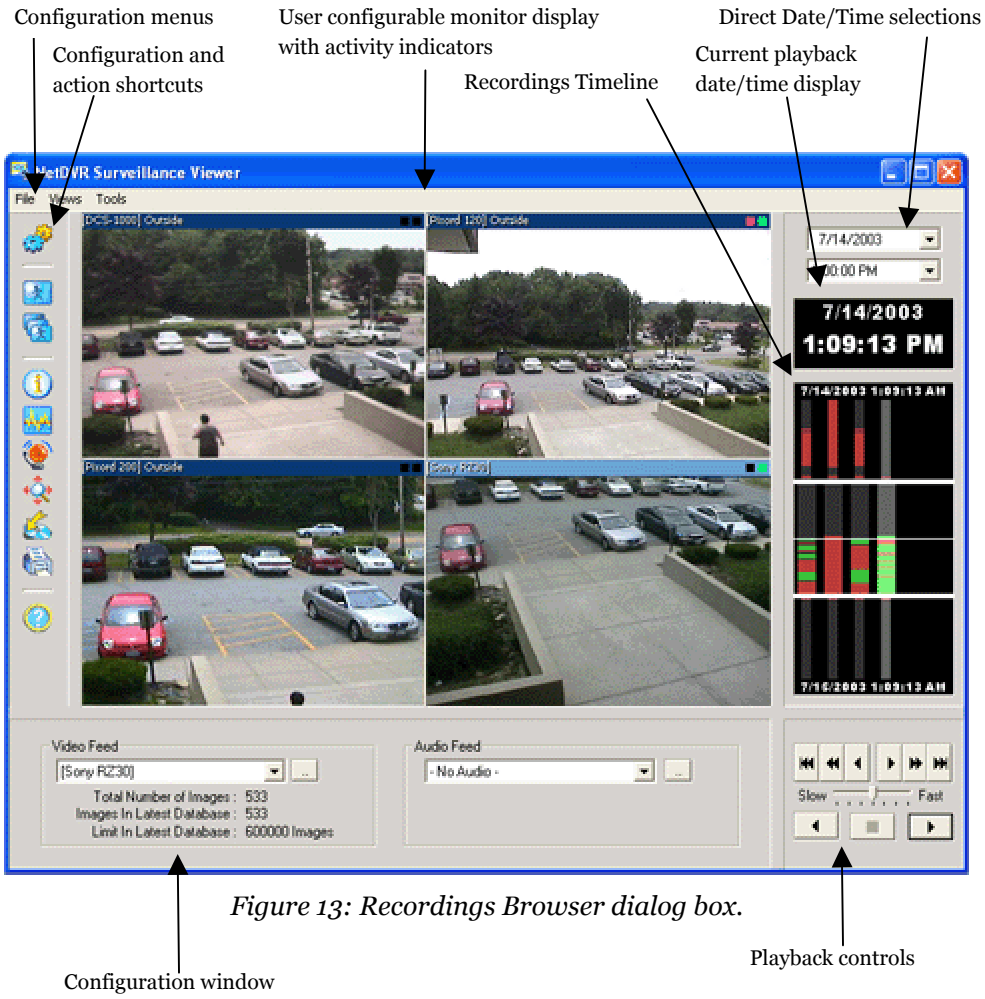


Figure 13: Recordings Browser dialog box.

The Browser window consists of eight elements:

Configuration Menus	Menus for Browser configuration and functionality activation.
Configuration Shortcuts	Shortcuts to selected Configuration Menu functions. When holding the mouse pointer over an icon the shortcut name is shown.
User configurable monitor display	Each monitor can be configured to display any video (and audio) source via the Tools, Database Information menu. The layout of the monitor display is configured in the File, Settings menu. In the status bar for each camera, the name of the camera and the *motion detection* (red) *and image in database without motion* (green) indicators are shown.
Direct Date/Time Selection	Jump directly to a specific date and/or time (15 minutes intervals). If the content is stored in an archived database located in the default path relative to the current database, the archives can be accessed transparently. If the archives are located in a different path than default relative to the current database, the archives must be opened manually by using the *browse* button in the Database Information menu.
Current playback date/time display	Here the date and time currently viewed on the monitors is displayed. The displayed date/time is the system (PC) time at the time of recording. This time is also referred to as a *timestamp*.
Recordings Timeline	The Recordings Timeline shows the database information for each camera monitor position. The information is distinguished by colors: Grey: No images are stored for this date/time. Green: Images with no motion are stored for this data/time. Red: Images with motion are stored for this date/time. The time span and direction of the timeline is configured from the File, Settings menu.
Configuration Window	Here the currently selected configuration/action window is displayed.
Playback Controls	The Playback Control Panel is used when playing back recordings. The Navigation Keys are used to jump to the previous/next image, motion sequence, and database end for the currently selected camera. Use the Play Reverse, Stop, and Play Forward buttons to control playback start/stop and directions. The Cue-Bar can be used to speed up and slow down the playback speed.

Configuration Options

The following functions are available from the Configuration Menus:

File Menu	Settings*): Activates the Monitor/Timeline Settings window. Monitor View: Set up the monitor layout (1, 4, 9 or 16 monitors) and whether the monitors should be displayed in their original height/width ratio or stretched to fit the monitor windows. Timeline: Set up the time span of the Recordings Timeline window and whether the timeline has the oldest (default) or the newest recordings at the top of the Timeline. Single View*): View only a single camera in the Browser (Alternatively double-click on an image to switch mode). Multi View*): View multiple cameras in the Browser simultaneously (Alternatively double-click on an image to switch mode). Exit: Close the Browser window.
View Menu	Add to Views: Store the current monitor view as a bookmark. The bookmarks are listed in the bottom of the menu. Organize Views: Rename and delete predefined views.
Tools Menu	Database Information*): Set up the video/audio for each monitor. Click on a monitor position, then select the desired video and audio source for this monitor position. If the source is located in an archive stored on a non-default position, or is an exported database, the content needs to be located manually using the browser (…) buttons. Motion View*): View the horizontal recordings timeline for the selected camera monitor position. Alarm Overview*): View the alarm list for the selected monitor position. Jump to an alarm date/time by selecting it in the list. Image Controls*): Post-recording image presentation. PTZ digitally in the image shown at the selected monitor position by using the +/- and arrow buttons. Select the "smooth image" option to digitally enhance the image. Select the 1:1 option to force the Browser to view the selected in original size and height/width ratio. If the monitor position window is smaller than the image, the zoom in/out and navigation buttons can be used to navigate in the image.
Tools Menu (Continued)	Export*): Export database content. Selecting the desired audio/video feed(s), as well as the desired date and time start/stop intervals to export. To export all video/audio feeds currently viewed, choose the

"Current Video Feed(s)" and "Current Audio Feed(s)" options.

Next, choose which format to export to:

AVI File: export to motion picture AVI format with audio

Database Files: export to new NetDVR databases for manual storage of selected information for review in any NetDVR Browser any time.

JPG/WAV Files: export as single JPG images with audio in separate WAV format files.

Click NEXT, then choose where to place the exported file(s), and select the export options (if any) desired:

Timestamp: Include system timestamp on JPG/AVI exports.

Half/Full Framerate: Select whether to include all (full) or every other (half) image when creating AVI files. Half Framerate may be desirable to avoid very large files when using high recording speeds.

Codec: Selected the codec (coder/decoder) to use when creating AVI files. If in doubt, Indeo® Video 5.10 or Microsoft Video 1 are good choices as they will work on most computers.

Print*): Print out the selected camera image with comments.

Help*): Content specific help tool.

*) This function can also be accessed directly by clicking on the appropriate Configuration and Action shortcut.

Appendix A: Advanced Camera Control with Sensors

Through most devices (cameras/video servers) it is possible to connect external sensors to the surveillance system. For example, PIR (Passive Infrared) sensors or door and window contacts could be connected. Please refer to the device manuals for a description of how to connect external sensors to the devices.

ONSSI NetDVR offers the possibility of controlling the camera activity, sending an E-mail and/or SMS alert or activating a device output port, with the use of external sensors. For each sensor one or more event can be defined and for each of the monitors a start and stop event can be selected from the defined events. Follow these steps in order to control camera activity through sensor input:

Start by opening the **Administrator** application and press the *I/O Setup button*. First we define an event based on the input from an external sensor. This kind of event is called an *external event*. For each external event one or more *timer events* can be defined. A timer event is an event that occurs after a specified time has elapsed since the related external event occurred.

In the *Defined Events* window select the camera or video server device to which the external sensor is connected. Now press the *Add New Event* button and the *Add New Event* dialog box appears if only one input is available or the *Multiple Input Events* dialog appears if more input are available. Select the type of event to be used, either through the drop down boxes or from the list if more inputs are available. In the latter first click the add button (>>), now:

A. Enter a name for the external event in the *External Event Name* box.

B. Check the "Send E-mail/SMS if this event occurs" option boxes if you want to be informed by E-mail and/or SMS when the event occurs.

C. Press the OK button of the dialog box in order to return to the Event Settings dialog box.

A plus (+) will now appear to the left of the device to which the sensor is connected. Press the plus in order to see the defined external event entry. The event name appears under the device, which indicates that this event is controlled through that device. In order to create a timer event that is connected to the new external event; select the event by clicking on it in the *Defined Events* window. Now press the *Add New Event* button. The *Define Timer Event* dialog box appears.

Do the following in this dialog box:

A. Enter a number in the Timer Event Occurs After box and specify if the number entered is in Seconds or Minutes.

B. Give the timer event a name in the *Timer Event Name* edit box.

C. Press the *OK* button of the dialog box in order to return to the *Event Settings* dialog box.

A plus (+) will now appear to the left of the defined external event found under the device to which the sensor is attached. Press the plus in order to see the defined timer event entry. The timer event name appears under the external event name, which indicates that this timer event is controlled through the external event. Press the *OK* button in order to return to the main window of the **Administrator** application. Click the Scheduler button and the *Camera/Alert Scheduler* dialog box will appear:

A. From the *Monitor* list box select the monitor to be controlled by the created events.

B. From the *Start Event* listbox select the event that starts the camera.

C. From the *Stop Event* listbox select the event that stops the camera.

Since the camera can be controlled through events but also controlled through time, we need to specify when the camera should be controlled by the start and stop events.

In the Camera/Alert Scheduler dialog box do the following:

A. Select the *Mode* to *Set* in order to specify the event period.

B. Check the *Online* check box, uncheck the *E-mail*, *SMS*, and *Sound* check boxes. Adding periods will now only apply to the *Online* part.

C. In the Scheduler week view click on the name of the day on which the event controlled period starts.

D. Now find the start time of the event-controlled period and click and drag the mouse to the end time.

E. You will now be asked to specify the selected time period as *On Events* or *Always*. Select *On Events* and the selected time period turns yellow in the Scheduler overview.

When online event periods have been set, press the *OK* button of the *Camera/Alert Scheduler* dialog box in order to start using the event settings and return to the main window. The camera will now start and stop on the specified events but only when in the specified event period.

Advanced button (I/O Setup):

Inputs are received in different ways from one device to another. By clicking the Advanced button the FTP port, TCP/IP port (Alert port) and SMTP port used can be set. For those devices requiring polling of inputs, the polling frequency can be set.

Appendix B: Using the NetDVR Web Se ver

NetDVR Surveillance includes a powerful web server that enables access to the image database from a remote computer. Through the web server you can get access to live images as well as playback recordings and browse the image databases (including archived databases in the *Archives* folder). Before the web server can be used the following requirements must be fulfilled.

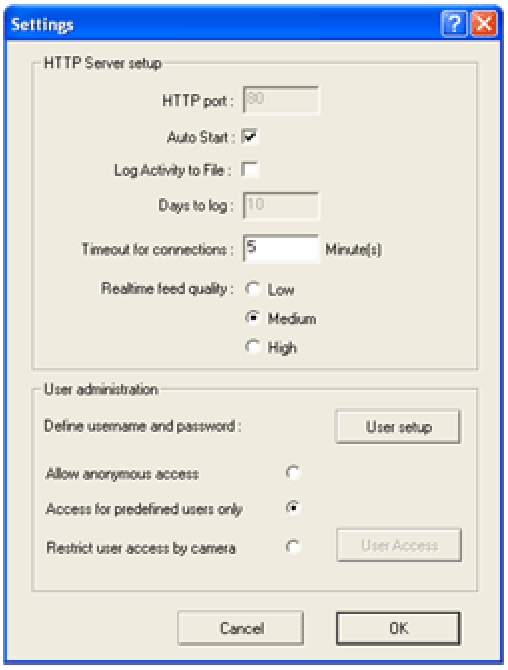
Requirements:

- Internet Explorer 5.0 or above is installed on the remote computer.
- The NetDVR Surveillance computer should be reachable from the remote computer through a TCP/IP connection (LAN, modem or Internet).
- The NetDVR Surveillance computer has a unique IP-address on the LAN and/or Internet.
- No other web server using the same http port (default port 80) must be running on the NetDVR computer. The http port can be changed from within the NetDVR Web server.
- The **Live Feed Server** uses port 9513. If changed the html pages needs to be edited to reflect this change. Look for the "RTFeed.port = 9513;" line in each html file and change the port number to the new value.

Open the NetDVR **Web Server** and **Live Feed Server** on the NetDVR Surveillance computer. You can open them from the NetDVR Surveillance group (Start menu), if these were not opened automatically at computer startup, i.e. with a shortcut placed in the *Windows Startup group*.

The two servers need to be started before they are active. This can be done manually by clicking the Server Start for both servers. If AutoStart have been selected chosen for both, they will automatically start when opened (default).

The options in the web server are:



HTTP Port: Here the port used by the HTTP server can be changed.

Auto Start: Start up the service automatically when the application I launched.

Log Activity to File: Maintain a log file in the NetDVR Surveillance installation directory

Days to log: Number of days to keep the log before it is deleted.

Timeout for connection: If a client has been inactive (not requested any new information) for the specified duration he is required to log in again to retrieve data.

Realtimefeed quality: The default quality used by the Realtimefeed server (can be overridden by user).

User administration: Three options exist for user administration:

Allow anonymous access: No passwords are required for accessing the server.

Access for predefined users only: Username/password is required to access the server. All users have access to all options and all cameras.
The user administration dialog is accessed via the User Setup button.

Restrict user access by camera: Each user (defined in the user administration) can be limited to view specific cameras only, be restricted to live views (no database play back) only and be disallowed to export recordings to AVI files.
The user rights administration is accessed via the User Access button.

The three quality levels of the Realtimefeed server (live and play back) can be changed in the Windows registry:
HKEY_CURRENT_USER\Software\ONSSI\Surveillance\General.

"RT High Quality", "RT Medium Quality" and "RT Low Quality" can be set to a value between 0-100, with 100 being the best quality.

Connecting to the NetDVR Web server interface.

When a user has been added the user should be able to connect to the NetDVR Surveillance system from a remote computer.

1. Start the Internet browser on the remote computer.
2. Enter the IP-address of the NetDVR Surveillance computer in the browser address box. Add the http port number after the IP-address if another port than port 80 (default) is used. A colon should separate the IP-address and port number. Now connect to the computer.
3. A log-in web page will be shown if the connection has been established successfully. Enter the username and password and select ActiveX support if you are interested in playback or live images. Press the *Login* button.
4. You are now connected to the NetDVR Web Server, and the last retrieved image from monitor 1 will be shown.

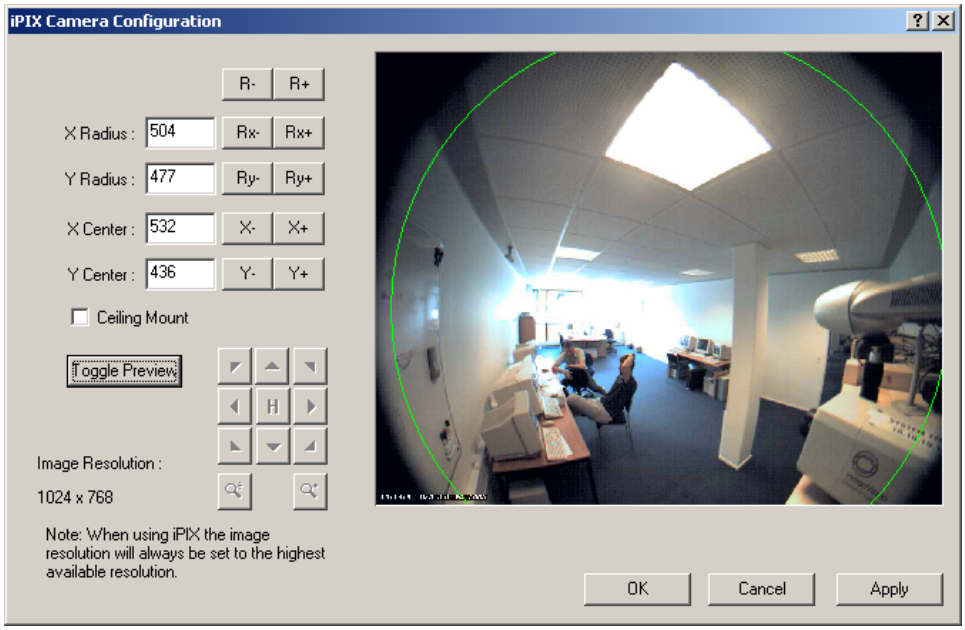
You can now:

- Change between the different cameras by selecting the camera in the graphic object (Single View - Select Camera). Move the cursor over the object (Monitor layout) and click when the desired camera is found. The camera name appears below.
- Search for images by using the Image, Motion, Sequence, End, Overview and Alarms forward/backward functions.
- Search for images by date/time by using the Goto function.
- Press the Playback button and press the *Play* button below the image to start playback from the current position in the database. Select between the Low, Medium and High user-defined image qualities from the drop-down box.
- Press the Live button and press the *Play* button below the image to start the live image stream. Cameras defined as PTZ cameras can be PTZ controlled. PTZ buttons will appear automatically. Select between the Low, Medium and High user-defined image qualities from the drop-down box.

  Note that the camera must be online in the Monitor application in order to establish a live connection to the camera!
- Print current image (Still) by pressing the Print button.
- Click Quad View and select a Quad View to view four cameras live on the same page. Start by selecting the four cameras from the list boxes below the four monitors and Press the OK button to start the live stream. A total of ten quad views can be saved. Save a Quad View by pressing the Save Setup button in the top of the Quad View. You can change the name of the Quad View to the left of the Save Setup button.
- Press the *Help* button of the web page in order to get a full functionality description of the different possibilities that you have.

Before iPIX technology can be used with a camera you need to:

- Enter the *NetDVR iPIX License Key* for the device in the "Edit Device" dialog
- Enable the iPIX technology for the monitor view in the "Camera Settings" dialog
- Configure the iPIX technology for the camera. Click the "iPIX Settings" button in the "Camera Settings" dialog and the iPIX configuration dialog will show:



The configuration consists in adjusting an ellipse to enclose the actual image area of the fish eye lens. Doing so will set the values, used by the iPIX technology, for converting the oval image to an ordinary rectangular image. The following buttons are using to accomplish the configuration.

R- / R+	Change both the horizontal and vertical radius of the ellipse at the same time, keeping the aspect ratio. Click **R-** to make the ellipse smaller and **R+** to make it bigger.
Rx- / Rx	Change the horizontal radius of the ellipse. Click **Rx-** to make it smaller and **Rx+** to make it larger.
Ry- / Ry+	Change the vertical radius of the ellipse. Click **Ry-** to make it smaller and **Ry+** to make it larger.
X- / X+	Move the ellipse to the left by clicking the **X-** button and to the right by clicking the **X+** button.
Y- / Y+	Move the ellipse down by clicking the **X-** button and up by clicking the **X+** button.
Ceiling mount	If the iPIX camera is ceiling mounted the navigation key behavior can be set to reflect this by checking the *Ceiling Mount* checkbox.
Toggle Preview	Toggle the image preview between fish-eye view and the view resulting from the iPIX correction algorithm as it is currently adjusted. In result preview the navigation keys can be used to PTZ in the image.
Apply	Click to save the current values and keep the dialog open. Clicking the **OK** button will also save the current values.